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CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES[1]

April 25–May 22, 1937

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the United States Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the Public Health Reports, under the section entitled "Prevalence of Disease."

Typhoid fever.—Typhoid fever continued at about the lowest level on record in relation to the seasonal expectancy. For the 4 weeks ending May 22 there were 514 cases reported, as compared with 532, 629, and 843 for the corresponding period in 1936, 1935, and 1934, respectively. In the Mountain region the incidence was slightly above the average for preceding years, while in the East South Central region it was considerably below the average. Other regions reported about the normal incidence for this season.

Measles.—The incidence of measles reached its seasonal peak during the current period, with 49,148 cases reported for the 4 weeks. In relation to recent years, the current incidence was the lowest recorded for this period in the 9 years for which these data are available. In 1936 the number of cases reported totaled 52,581, while in 1935 and 1934 there were approximately 123,000 and 125,000 cases, respectively, reported during this period.

Meningococcus meningitis.—For the 4 weeks under report, 504 cases of meningococcus meningitis were reported, as compared with 912 last year and 705 in 1935. The average for the years 1932–34, inclusive, was 240 cases. The incidence in the South Atlantic and South Central regions dropped below that of last year, but it was still well above the average in those regions for preceding years. Other regions compared favorably with recent low years.

[1] From Statistical Investigations, Division of Public Health Methods, National Institute of Health. These summaries include only the 8 important communicable diseases for which the Public Health Service receives weekly telegraphic reports from the State health officers. The numbers of States included for the various diseases are as follows: Typhoid fever, 48; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 46; diphtheria, 48; scarlet fever, 48; influenza, 44 States and New York City. The District of Columbia is counted as a State in these reports.

Influenza.—Cases of influenza continued to decline in all sections of the country. The number (4,929) reported for the current period was less than 50 percent of the number reported for the corresponding period in 1936. For this period in 1936, 1935, and 1934 the numbers of cases were 3,358, 3,918, and 3,225, respectively. The South Central and Pacific regions continued to report an excess over the average expectancy, but in all other regions the incidence was about normal for this season of the year.

Diphtheria.—The number of reported cases of diphtheria (1,544) represents the lowest incidence on record for this season. In 1936, 1935, and 1934, the cases for this period totaled 1,649, 2,044, and 2,190, respectively. The Pacific region reported an increase over last year's figure, but in other regions the incidence either closely approximated that of last year or fell considerably below it.

Scarlet fever.—The incidence of scarlet fever was about normal, with approximately 24,600 cases reported for the 4 weeks ending May 22. The seasonal decline was well under way in all sections of the country. In the North Atlantic and South Central regions the incidence was slightly above the average for preceding years, while in the South Atlantic region it was the lowest in recent years. Other regions reported about the normal seasonal incidence.

Poliomyelitis.—For the country as a whole the incidence (78 cases) of poliomyelitis was at approximately the average level of recent years, although the South Central regions continued to report a relatively large number of cases. A seasonal rise in this disease may be expected within the next month or two.

Smallpox.—The incidence of smallpox during the current period continued high in relation to recent years, with 1,142 cases reported—the highest incidence for a corresponding period since 1932. The geographic distribution of this disease has been very uneven. While more than half of the Atlantic Coast States have reported no cases since early in 1935, when the present rise in incidence began, States in the West and in the upper Mississippi Valley have continuously reported the highest incidence in recent years. In the South Central regions the incidence has been below the average for the preceding 4 years.

Mortality, all causes.—The average mortality rate from all causes in large cities for the 4 weeks ending May 22, based on data received from the Bureau of the Census, was 11.8 per 1,000 inhabitants (annual basis). The average rate for the corresponding period in the years 1932–36, inclusive, was also 11.8.

REPORT OF TWO OUTBREAKS OF FOOD POISONING

By J. C. Geiger, *Director of Public Health, San Francisco, Calif.*

Food poisoning, as it is understood today, is the result, directly or indirectly, of the contamination of food with certain bacteria. Clinically it may be classified as an intoxication. It is probably as old a condition as any of the diseases affecting the human being and consequently has been known by a much varied terminology.

The heterogeneous factors usually involved in outbreaks of food poisoning, more especially the vehicular food, the numbers of persons affected, the delayed reporting of the incident to the health authorities, and, particularly, the causative bacteria responsible, constitute a problem that too frequently does not lend itself to easy solution. Much of the information obtained has to be discarded, since it is irrelevant to the solution by accepted epidemiologic technique. As an added complication, the problem is not infrequently confused by the lack of agreement between data obtained by direct epidemiologic methods and data obtained by bacteriologic study; or specimens of the incriminated food and of feces and urine from the affected individuals even may not be available for bacteriologic investigation.

TWO TYPES OF FOOD POISONING AND INVESTIGATIVE PROCEDURES

The scientific worker generally recognizes two types of food poisoning. One type is due to the contamination of the food with the paratyphoid-enteritidis group or other bacterial organisms, either through the agency of a human or animal carrier or from the meat of an animal suffering from a specific infection with these germs. Subsequent incubation of the contaminated food through improper and insufficient cooking, refrigeration, or storage allows the bacteria to secrete, in their growth, a poisonous product, or, perhaps in the process of heating, certain products become soluble and evidently poisonous. The consumption of such food is followed within several hours by symptoms of nausea, abdominal pain, vomiting, prostration, diarrhea, and perhaps fever. Complete recovery within 48 hours is the rule. Food poisoning of this type can be prevented, and food products can be made safe through the continued use of relatively simple methods of cleanliness and proper manufacturing and merchandising surroundings and protection against contamination and incubation of the product, particularly through sterilization of equipment and thorough adequate refrigeration.

The other type of food poisoning is known as botulism, and is due to the contamination of the food with a specific bacterium known generally as the *Bacillus botulinus*. This germ is found in the soil

practically throughout the world. It exists in nature in the form of a spore and as such is not poisonous. When so-called nonacid or slightly acid foods, such as many vegetables, fish, and meat, are preserved by faulty and insanitary methods, botulinus poisoning may result from eating them. The symptoms usually appear within 24 to 48 hours after the consumption of the poisonous food. There may be marked muscular weakness, disturbances of vision, loss of ability to swallow and talk, constipation, rapid pulse and subnormal temperature, rarely any pain, and death from respiratory failure. This somewhat rare type of poisoning, serious because of its high death rate, has apparently been eliminated from commercially canned foods. Home-canning methods antedate the present-day knowledge of botulism, and it is regrettable that, with a few exceptions, little effort has been made to correct them. Only boiling for a sufficient length of time after removal from the glass jar, or can, before being served, or preservation in at least 10 percent brine solutions, will make home-canned foods reasonably safe.

A comparison of the symptomatology, incubation period, treatment, mortality, and investigative procedure in the two types of food poisoning is presented in the accompanying tabulation:

	General food poisoning	Botulism
Incubation period	Usually 3 to 8 hours; rarely over 12	Usually 24 to 48 hours.
Symptomatology	Sudden onset; nausea, vomiting, abdominal pain, prostration, diarrhea, and rise of temperature.	Delayed onset; marked muscular weakness; gastro-intestinal symptoms, rare; disturbances of vision with diplopia and blepharoptosis; loss of ability to swallow and talk; constipation, rapid pulse and subnormal temperature; rarely any pain; death from respiratory failure.
Case infectivity rate	High	Usually 100 percent.
Mortality	0 to 1 percent	Over 60 percent.
Investigative procedure	1. Use incubation period for basis of determining the causative meal.	1. Use incubation period for basis of determining the causative meal.
	2. Always suspect freshly cooked or warmed-over foods. Preserved foods are rarely at fault. Foods are apparently good as to taste, appearance, odor and texture.	2. Always suspect preserved foods; likewise, meat products such as sausages. Spoilage of foods is noted in many instances.
	3. Bacteriologic examination of excreta of patients and the suspected food for the paratyphoid group and other organisms. Feeding of white mice and perhaps other laboratory animals with suspected food, both direct and by stomach tube. Likewise, injection and feeding of filtrates of bacterial organisms isolated from suspected food.	3. Test of suspected food for toxin by animal inoculation; mice, guinea-pigs or rabbits. Test for type with specific antitoxin. Culture of suspected food for the presence of spores, particularly if food has been previously boiled.
	4. Bacteriologic and epidemiologic search for human carriers and possible contamination from animal sources, especially rats. Sanitary survey of source of suspected food, especially important where cream fillings or sauces are involved and the staphylococcus is the predominating organism.	4. Search for domestic animals, such as chickens with symptoms of limber-neck, for corroborative field and laboratory evidence.
	5. Complications: Appendicitis, cholecystitis, persistent elevation of temperature (paratyphoid infection.)	5. Complications: Broncho-pneumonia.
		6. Human outbreaks are usually due to Type A toxin.
Treatment	Supportive and eliminative	Botulinus antitoxin, specific type; absolute quiet; eliminative; and glucose solutions.

Report of Two Outbreaks

OUTBREAK APPARENTLY DUE TO CUSTARD CAKES, ITALIAN STYLE, CONTAMINATED WITH STAPHYLOCOCCI

On the evening of June 21, 1936, 5 persons in family A were admitted to the Emergency Hospital in San Francisco, Calif., for the treatment of symptoms typical of the so-called general type of bacterial food poisoning (nausea, vomiting, abdominal pain, diarrhea, and prostration, without elevation of body temperature). Within 30 minutes, two members of family B were brought to the same hospital for attention because of similar symptoms. In questioning the two groups, it was apparent that, although some of the members of family A were acquainted with members of family B, they had not eaten of the same meal. Both families had had dinner at about the same hour, 1 p. m., and the symptoms and signs in those affected had manifested themselves as early as 4 p. m. in some members of the group, although the incubation period varied from 3 to 6 hours.

Within a second period of 30 minutes, Mrs. C sought care at the same hospital for typical food poisoning symptoms. She provided the first definite clue as to the cause of the food poisoning occurring in the unrelated families, and the first hint as to the possible extent of the outbreak. Mrs. C ate dinner in her own home about 1 p. m. and then went to the home of family A about 2 p. m., sat down at the dinner table with them, but ate only one slice of cake. It was then learned that both families had served the same kind of cake, a fancy cream custard layer cake, and that both cakes had been purchased, separately, from the same bakery. Within a few minutes, two members of family D were brought to the same hospital, ill from food poisoning.

From this beginning, on Sunday evening, some 110 persons of 28 families were reported on Sunday, Monday, and Tuesday as having been ill with food poisoning on Sunday and Monday. In the several separate and distinct groups, unrelated in their contact and foods except for the cream custard layer cake (Italian style, Saint Honoré cake) and living in different sections of the city, epidemiologic investigation resulted in the fixation of the source of the intoxication in the cake.

On the basis of the evidence available during the first hour after family A's admission to the Emergency Hospital, an inspection was made of the bakery involved. Two cakes of the same type as those apparently involved in the outbreak were still in the bakery. These were taken for laboratory study, and from two of the affected families remnants of the cakes were also obtained for laboratory examination.

During the evening and night, 21 persons were treated in 3 stations of the Emergency Hospital Service. With the attendant publicity

the following morning, many additional instances were reported by the affected persons themselves and by private physicians, and in several instances remnants of cakes were made available for examination by bacteriologic methods in the laboratories of the Department of Public Health. In all instances the source of the cake was invariably the same.

The Saint Honoré type of cake is somewhat elaborate, with a cream custard spread over each layer, and a decorative custard, cream, and sugar icing top. Because of past experiences in which the source of infection has been definitely traced to the cloth bags used in the injection of cream custard into pastry shells, interest was first centered in these bags as a possible source of the present infection. Attempts had been made to effect the discontinuance of the use of such appliances, since they permit of practically direct contact between the hands of the operator and the custard itself, and to encourage the use of vegetable parchment (impervious) bags, to be discarded after use. It was believed that, under the ordinary existing circumstances, even boiling such metal-tipped cloth bags was not a solution of the problem, since their handling and storage after boiling was not satisfactory.

The findings in the bakery may be briefly outlined as follows:

1. An almost total lack of screens permitted definite fly nuisance.
2. The refrigeration facilities were inadequate.
3. Canvas bags on hand showed evidence of recent use.
4. Running hot water was not available for washing equipment.
5. Free use of the bare hands was manifest throughout the period of observation. This is of particular importance in relation to the absence of hot water, infrequent washing of the hands, and actually dirty fingernails.
6. Evidence of rodent infestation in the basement was confirmed by direct verbal reports from members of the staff of the United States Public Health Service Plague Suppression Laboratory of rats trapped on these and neighboring premises, in which instances "the rats had dough in their mouths, on their feet, on their tails, and on their bellies." The basement was disorderly and badly kept, thereby encouraging rodent infestation. A wooden floor, several inches above the cement foundation floor, provided excellent avenues for rat runs.
7. By far the most interesting possibilities, however, were found in the procedures followed in the preparation of the cream custard. The custard was made in 2-gallon batches by the following method: A mixture of milk and sugar was heated and brought to the boiling temperature. In a separate container, eggs were beaten with cornstarch and sugar. When the milk and sugar mixture had been brought to boiling temperature, the heat was cut off and the cornstarch mixture was rapidly stirred in, the whole mixture rapidly thickening. After the ingredients had been mixed the whole mixture was spread out in a thin layer on a marble slab, so that the temperature was rapidly reduced approximately to that of the room. The slab was prepared for the custard only by wiping it off with an apparently dry or slightly damp, soiled cloth, and numerous flies were observed on the exposed surface. The "cooled" custard was allowed to remain on the slab for more than 30 minutes, after which time it was put in a metal container and placed in the refrigerator. (It was of some interest to observe, however, that no little difficulty was involved in securing space in the refrigerator at the time that

the custard was customarily prepared). After rinsing off the equipment with cold water, cream was whipped in an electric mixer, sugar and flavoring extracts being added meanwhile. In the preparation of the Saint Honoré type of cake, the final custard was a mixture of equal parts of the custard as described and the whipped cream, thoroughly mixed, which was spread on layers of cake by a spatula supposedly rinsed off in water. By manual process, nuts and bits of glaced fruits were added to the finished cake.

8. Milk and cream used in the baking were of pasteurized Grade A quality, purchased in small cans directly from the pasteurization plant distributor. Eggs were not of prime quality, and the "breaking" process was not conducted in a cleanly manner. The manual method was most frequently resorted to, and the personal hygiene of the hands, it should be emphasized, was not of the best.

Laboratory studies confirmed the epidemiologic findings. The material examined included cakes directly from the bakery, remnants of cakes in the homes of the affected families, and remnants of cakes brought in by others who had read of the incident in the newspapers. Bacteria colony counts of the custard filling ran as high as 10 million per gram, with several ranging from one-half to 3 million per gram. Differential studies revealed *B. coli*, *Streptococcus lacticus*, and both hemolytic and nonhemolytic strains of *Staphylococcus aureus*. In the Hooper Foundation of the University of California, heavy pigment-producing colonies of the hemolytic *Staphylococcus aureus* were put on starch-rich solid media for 60-hour cultures in an attempt to secure toxin formation under circumstances simulating those of the custard. Intraperitoneal injections of 3 cc of the filtrate of washed cultures produced marked vomiting and severe diarrhea in kittens in 25 and 40 minutes. "Control" cakes, obtained several days after the incident described, showed bacteria colony counts of from 40 to 30,000 colonies per gram the first day, 60 to 120,000 colonies the second day, and 70 to 150,000 colonies the third day, but in no instance more than 150,000 colonies per gram. Differential studies showed the predominant organism to be *B. coli* and nonhemolytic *Staphylococcus albus* and *aureus*.

Bacteriologic study of the intestinal flora of a rat caught in the same premises failed to reveal organisms of interest in relation to the epidemiology of the outbreak.

Cloth bags used in injection of pastry shells showed good growth of *Staphylococcus aureus* and other high bacteria colony counts.

SUMMARY

1. More than 110 reported cases in more than 28 families were affected in an outbreak of food poisoning traced to cream custard cakes from a single bakery.

2. Ample opportunity for contamination of the custard during its preparation, storage, and handling, were manifest on direct observation of procedures followed.

3. Laboratory confirmation of the epidemiologic investigation included high bacteria colony counts per gram of custard—*B. coli* and hemolytic and nonhemolytic strains of *Staphylococcus aureus* (heavy pigment producers); toxin formation by hemolytic *Staphylococcus aureus* on starch-rich media (produced marked vomiting and diarrhea in kittens on intraperitoneal injection). Control studies made on similar cakes several days later showed lower counts even on the third day, with *B. coli* and nonhemolytic strains of *Staphylococcus albus* and *aureus* present.

OUTBREAK OF BOTULISM APPARENTLY DUE TO EUROPEAN COMMERCIALLY CANNED ANTIPASTO

Of a group of 16 persons eating Thanksgiving Day dinner together, 10 were hospitalized for the treatment of a condition presenting the clinical picture of botulism. Of the 10 hospitalized persons 1 was found not to present evidence of the intoxication, 3 died, and 6 recovered. An additional person, who was not hospitalized, gave a history of certain symptoms and signs of interest in connection with the possibility of intoxication.

The first 5 patients admitted were those most seriously ill, including the three who died. In these cases, the onset was within 30 hours, and the group was hospitalized during the late evening hours of the day after Thanksgiving, about 36 hours following the Thanksgiving Day dinner. The three deaths occurred on the following day, within 60 hours of the dinner and within 24 hours after hospitalization. The clinical manifestations were of the "textbook type" in certain instances, less striking although definite in others and absent in one instance. In another case, early vomiting was probably responsible for the absence of signs of definite intoxication.

Epidemiologically, investigation indicated the source of the intoxication to be European commercially canned antipasto. The meal consisted of turkey with dressing, cranberry jelly, chicken broth, and mince pie. Bread and butter, coffee, potatoes (?), and one fresh vegetable (?), also were served. From the epidemiologic viewpoint, antipasto, not alone because of its being the only item of food common to all those who were affected, but also because of the possibilities offered by the product itself, is the only item of the listed menu presenting any significant probability as the source of the intoxication.

The antipasto served at the dinner was a mixture of the contents of two cans, both imported from Italy—one from Genoa and one from Trieste. At the time of hospitalization, one of the patients said he had opened the can and was impressed by the "slushy" contents thereof, which "squirted." Another point of interest involves the patient's statement that the antipasto "did not taste right." Other members of the affected group commented upon the "bitter taste"

of the mixture. It is of interest, too, that a 13-year old girl, liking the tuna fish especially, ate two pieces of it. She was the most seriously ill of the group, and the first to die. This is of significance because of the relatively high pH of tuna itself and the possibility of the use of a "honeycombed" product in the pack.

All stocks of these two brands were quarantined and samples were obtained for laboratory study. Cultures and animal tests were negative for *Cl. botulinum* and its toxin. The two cans involved were never recovered, so that positive and final proof of the source of the intoxication will never be obtained.

The investigation, however, has brought to light certain interesting points relating to the canning of such products as antipasto. One of these brands had not been regularly distributed in California for about 9 years and the stock in the involved grocery store had been on the shelves for approximately 5 years.

That botulism was the cause of death was proved in two of the fatal cases when the toxin of *Cl. botulinum*, Type A, was demonstrated in autopsy material in the laboratories of the George Williams Hooper Foundation of the University of California. The toxin was not demonstrated in the third fatal case.

It may be of interest to note that a jar of so-called canned mushrooms was found in the home. Toxicological examination of the contents of this jar made at the George Williams Hooper Foundation of the University of California revealed the presence of botulinus toxin, Type A. These mushrooms were stated to have been prepared by being boiled for 20 minutes in highly acidified water, namely, with vinegar added, and later placed in olive oil in a fruit jar with a tight top. The mother of the family involved, who prepared the infective meal, stated that she had used portions of the contents of this jar without ill effects on different occasions for 6 weeks to 2 months before Thanksgiving Day, but *not* within the 2 weeks immediately preceding Thanksgiving Day, nor were these mushrooms used on that day in the meal which caused the outbreak.

TREATMENT

Attention is invited to the use of hypertonic solutions of glucose (10 percent), intravenously, in the treatment of botulism, as employed in some of these cases. In the case of one child who recovered, the specific antisera were given in 1,000 cc of a 10-percent solution of glucose. The same quantity of glucose solution without the antisera was given again on each of 4 of the 5 succeeding days. The patient's condition was serious and even critical at times, and glucose was believed to be of great importance in his recovery. The clinical manifestations interpreted as evidence of marked intoxication were noticeably lessened in intensity after the administration of glucose alone.

In the cases of three other children who recovered, the specific antisera were administered in varying quantities in 250 cc or 300 cc of the glucose solution, without repetition of the glucose solution alone. In these cases, although there was definite evidence of intoxication, there was not the same intensity of symptoms and signs as in the case of the first child.

In the case of an adult who recovered, 10,000 units (50 cc) of the specific antisera were administered in 1,000 cc of 10-percent glucose. This patient was also given 1,000 cc of 10-percent glucose alone on 4 of 5 successive days. Improvement was definite and progressive during his convalescence.

The use of hypertonic glucose (10 percent) solutions in this small group of patients (two received 5,000 cc and 4,000 cc, respectively, over a period of 5 and 4 days, and three received 300 cc, 250 cc, and 550 cc, respectively), may be of no significance, particularly from the statistical viewpoint. From the viewpoint, however, of an attempt to evaluate clinical therapeutic procedure in cases of botulism, the results in improvement were so striking that this information has been presented here for consideration.

INCIDENCE OF SPONTANEOUS TUMORS IN A COLONY OF STRAIN C_3H MICE[1]

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REVIEW OF PREVIOUS LITERATURE

The purpose of this report is to record the incidence of spontaneous mammary gland tumors in an inbred stock of mice designated as the C_3H strain. Animals of this strain have been used for experimental work in this laboratory (*1*) and have proved to be very susceptible to the carcinogenic activity of 1, 2, 5, 6-dibenzanthracene. Hence, it may be of some interest to ascertain the incidence of spontaneous tumors in the breeding females of this strain which have been propagated in this laboratory and to compare these results with those obtained by other investigators who have recorded their findings in breeding females of the same strain of mice.

The strain was originated by Dr. L. C. Strong, who has published two communications dealing with his data on the tumor incidence in this strain. In one of these papers (*4*) the origin of the strain and the tumor incidence of one line is discussed. Strain C_3H was started in 1920 by breeding a male from the Little strain of dilute browns to a female albino mouse obtained from Dr. H. J. Bagg. Among the offspring of these mice was a female which had an exceedingly inter-

[1] From the Office of Cancer Investigations, U. S. Public Health Service, Harvard Medical School, Boston, Mass.

esting tumor history, and it is the progeny of this mouse which Strong has designated as mice of the C_3H strain. As recorded in this communication, Strong has inbred one particular line of mice by brother-to-sister matings with the exception of two "breaks" in the series when near relatives were substituted. Thirty-four generations are recorded, and every female for the last 21 generations has developed spontaneous mammary gland carcinoma. In this line, consisting of 42 females, 38 or 90.4 percent, developed spontaneous tumors of the mammary gland at an average age of 10 months, as shown in chart 2 of Dr. Strong's paper (*4*).

In his second paper (*5*) Strong includes 83 breeding females of the strain, and of these, 58, or 69.8 percent, developed spontaneous mammary growths at an average age of 13.7 months. It is shown that neither the age at which the first litter is born nor the number of litters produced have any pronounced influence on the age incidence of spontaneous tumors.

Bittner (*2*) has also reported on the tumor incidence of a stock of C_3H mice obtained from Strong. The stock had undergone 21 generations of inbreeding prior to the time he received his animals and has since undergone 12 additional generations; thus, his stock has experienced 33 generations of inbreeding. He has selected lines in which no breeding females have died free from cancer and states that in one line mammary gland tumors have been observed for 20 successive generations. Of 200 breeding females in this stock living 4 months or longer, 156, or 78 percent, developed spontaneous tumors. In a more recent paper Bittner and Murray (*3*) have compared the tumor incidence of this C_3H stock to that of three other stocks of high tumor incidence, and according to the figures presented in table 3 of this article, the average age at which tumors were noted in the 156 strain C_3H mice was 11.4 months. No correlation was detected between the incidence of mammary gland tumors and the breeding behavior of their mice.

Suntzeff, Burns, Moskop, and Loeb (*6*) used strain C_3H mice in studies on the effect of estrin on the incidence of mammary gland carcinomas and record that among 46 breeding females used as controls, 28, or 60.8 percent, developed spontaneous mammary tumors at an average age of 10.9 months.

BREEDING PROCEDURES AND TUMOR INCIDENCE

From the preceding observations it is obvious that the breeding females of strain C_3H exhibit a high rate of spontaneous mammary gland tumors. In this report an effort will be made to present the data pertaining to the tumor incidence in a colony of these mice which has been under its present supervision since January 1, 1933. The only mice included in this report are breeding females which

have given birth to one or more litters and includes all such mice under observation from January 1, 1933, to February 1, 1937. It is hoped that by giving this complete tabulation any interested reader may obtain the information he desires so far as tumor appearance is concerned.

Through the kindness of Dr. L. C. Strong, a group of six C_3H strain mice, consisting of four sisters and two brothers, representatives of the eighteenth generation of inbreeding, was procured in October 1930. These mice and their progeny were mated brother-to-sister through five or six generations prior to January 1, 1933, at which time the colony came under its present supervision.

From January 1, 1933, up to the present time the mice have been fed the same rations and no change has been made in the manner in which they have been bred or handled. Purina dog chow is the standard diet, and an unlimited supply of drinking water is available at all times. Litters are weaned at approximately 1 month of age and are then kept in a weaning cage until 6 or 8 weeks old, when the females are given numbers and all males except one removed. The cage is then considered a breeding cage. Pregnant females are removed from the breeding cage and each is placed in a separate lying-in cage. Pregnancy is usually detected about 7 to 10 days before the litter is born. As soon as a female is placed in a lying-in cage, she is given a supplementary diet of bread and milk, which is continued until the young are weaned. Part of the gestation period and all of the lactation period, as well as a few days in early life, when bread and milk are given, are the only times when any female mouse receives food other than the dog chow.

After a mouse has given birth to a litter, she is placed in a "discontinued cage" and kept under observation for the remainder of her life. This procedure is followed for every female mouse, regardless of whether her litter was eaten, died during lactation, or was successfully nursed and weaned. It is the information gathered from the life histories of these "discontinued" females which constitutes the figures presented in this report. No breaks have occurred in the brother-to-sister method of inbreeding throughout the 15 generations recorded herein.

In table 1 is presented a summary of all mice of the 16 generations under observation since January 1, 1933, to February 1, 1937. The first nine generations are completed, that is, every mouse either developed a tumor or died tumor free; consequently, a separate total for these nine generations is given in the table. A separate total is also given for the last seven generations, the records of which are still incomplete, inasmuch as in each of these generations there are still some survivors. Finally, totals are given for all 16 generations.

TABLE 1.—*Summary of all breeding females under observation from Jan. 1, 1933, to Feb. 1, 1937*

Generation	Number living on Feb. 1, 1937	Number died without tumor	Number developed tumor	Total number of mice	Percent developed tumor
F_2	0	5	26	31	83.8
F_3	0	14	56	70	80.0
F_4	0	18	59	77	76.6
F_5	0	28	76	104	73.0
F_6	0	21	86	107	80.3
F_7	0	9	50	59	84.7
F_8	0	11	30	41	72.9
F_9	0	25	60	85	70.5
F_{10}	0	23	45	68	66.1
Totals for completed generations	0	154	488	642	76.0
F_9	7	31	77	115	66.9
F_{10}	16	21	89	126	70.6
F_{11}	6	7	76	89	85.3
F_{12}	9	1	75	85	88.2
F_{13}	17	5	93	115	80.8
F_{14}	28	3	31	62	50.0
F_{15}	66	0	0	66	----
Totals for incompleted generations	149	68	441	658	67.0
Total	149	222	929	1,300	71.4

In the 9 completed generations there was a total of 642 mice, and of these, 488 or 76 percent developed spontaneous mammary gland tumors. This percentage is comparable to that found by Bittner, who reported a tumor incidence of 78 percent in 200 mice of his stock of strain C_3H mice. It is also seen in table 1 that the tumor incidence varied in the different generations, fluctuating between 66.1 percent in the F_8 generation and 88.2 percent in the F_{12} generation. This difference may be due to a greater proportion of mice dying without cancer in the F_8 generation, for it appears as though practically all the female mice of this strain inherit a tendency to develop spontaneous mammary gland carcinoma.

RESULTS OF INBREEDING

On January 1, 1933, 31 female mice representing 27 litters were mated to their brothers. The only effort toward selection at that time was to breed only those mice which had common ancestors among the mice obtained from Dr. Strong. Female 49230 and male 52478 were these ancestors. Both these mice had been numbered by Dr. Strong and both were offspring from female 43226 and male 43225 of his colony. Female 49230 was born on April 16, 1930, and male 52478 was born on July 3, 1930. In this manner female 49230 was selected as the common ancestor of all the mice in this colony.

The breeding of the 31 females and their offspring was continued through five generations without any effort toward selection. At the conclusion of the fifth generation of inbreeding the results in the

various lines of mice obtained from the original 31 females were examined for any information relative to tumor occurrence or breeding habits, the purpose being to select the two best lines from the standpoint of tumor incidence for continuing the colony. It was found that the offspring of mouse 876 and mouse 492 were more satisfactory as regards tumor history than the other lines. Therefore the breeding of all other lines was discontinued and only the two more promising lines were allowed to propagate.

TABLE 2.—*Summary of 5 best tumor lines of C₃H female breeding mice after 5 generations of inbreeding*

Generation	Line 876			Line 492			Line 715			Line 757			Line 742		
	Mouse no.	Tumor	Age in months	Mouse no.	Tumor	Age in months	Mouse no.	Tumor	Age in months	Mouse no.	Tumor	Age in months	Mouse no.	Tumor	Age in months
F	876	+	16	492	+	12	715	+	18	757	+	11	742	+	21
F_1	1123	+	11	984	+	22	1061	+	19	1108	+	20	1073	+	16
F_2	1203	+	6	1177	+	14	1166	+	23	1189	+	12	1140	+	22
F_3	1295	+	9	1260	+	12	1239	−	21	1265	+	12	1207	+	17
F_4	1434	+	9	1358	+	10	1372	+	11	1385	+	17	1308	+	22
F_5	1516	+	9	1490	+	9	1460	+	15	1468	+	15	1440	−	25

The history of lines 876 and 492, as well as the three other best lines for the first five generations of inbreeding, is presented in table 2. In the table the + sign denotes the occurrence of a spontaneous mammary gland tumor and the − sign denotes the death of the mouse without tumor. It is seen that the mice of lines 876 and 492 developed tumors earlier than did those of the other lines

During the next five generations, mice of lines 876 and 492 were bred in order to ascertain which line might prove to be the better, so far as the average age of tumor occurrence was concerned. Further selection was also made by discontinuing any family of the two lines in which successive generations of spontaneous tumors were interrupted by the death of a mouse free from tumor. The results of these five further generations of inbreeding is shown in table 3, in which the mice of all generations are recorded as to their ages in months when their tumors were noted, along with the average tumor age for each generation. Mice of the F_{15} generation are omitted because none had developed a tumor up to February 1, 1937.

TABLE 3.—*Time of appearance of spontaneous mammary gland tumors in breeding females of the C_3H stock*

Age in months	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Total number of tumor mice	Average tumor age in months	Number living on Feb. 1, 1937
Generation	**Number of mice**	**Number of mice showing tumors**																								
F	31					1	2	2	2	4	2	1	6	1	2			2						1	26	14.9	0
F_1	70				2	2	5	1	7	9	1	6	2	2	4	5	4	1	1			2		56	15.6	0
F_2	77		1		1	2	5	5	6	8	11	8	3	1		4	1	1	2					59	14.0	0
F_3	104					3	1	4	10	10	7	4	4	7	4	3	5	8	4	2				76	15.8	0
F_4	107				2	7	10	9	5	10	7	6	8	3	4	4	2	3	4		2			86	14.2	0
F_5	89			1	2	5	2	7	3	7	3	6	4	1	2		2	3		1		1		80	13.8	0
F_6, line 876	9			1	1	1	2	1	1															7	9.5	0
F_6, line 492	32			1		2	3	1	3	2	1	2	2	1	3		2							23	13.7	0
F_7, line 876	32	1	2	5	3	5	2	1	3	1														23	8.7	0
F_7, line 492	53			1	3		5	2	6	1	2	7		4	1	2	1	2						37	13.7	0
F_8, line 876	37				3	2	5	3	4	1	1	1												20	10.7	0
F_8, line 492	31			2	1		2	1	1	3	2	4	1	3		2	1	1			1			25	14.8	0
Totals of completed generations	642	1	3	11	18	30	41	41	45	54	45	40	34	23	18	15	22	24	10	6	4	2	1	488	14.0	0
F_9, line 876	50		3	2	12	5	5	8				1			1		1			1				39	9.9	0
F_9, line 492	65	1		2		3	2	3	3	5	7	2	1	2	1	3		1	2					38	13.4	7
F_{10}, line 876	70	1	2	7	4	15	11	4	4	1	2	1	3	1				1						57	10.1	5
F_{10}, line 492	56				1	3	1	6	3	2	4	3	2	2	2	2	1							32	13.5	11
F_{11}, line 876	79		4	7	23	14	9	5	4	2		1												69	8.9	5
F_{11}, line 492	10					1	1	2	1		1		1											7	11.9	1
F_{12}, line 876	85			10	17	10	16	15	3	2	2													75	9.3	9
F_{13}, line 876	115	1	6	22	22	26	14	2																93	8.0	17
F_{14}, line 876	62		3	7	15	6																		31	7.8	28
Totals for incompleted generations	592	3	18	57	94	83	59	45	18	12	16	8	7	5	4	5	2	2	2	1				441	9.7	83
Totals	1,234	4	21	68	112	113	100	86	63	66	61	48	41	28	22	20	24	26	12	7	4	2	1	929	[1] 12.0	83

[1] Average.

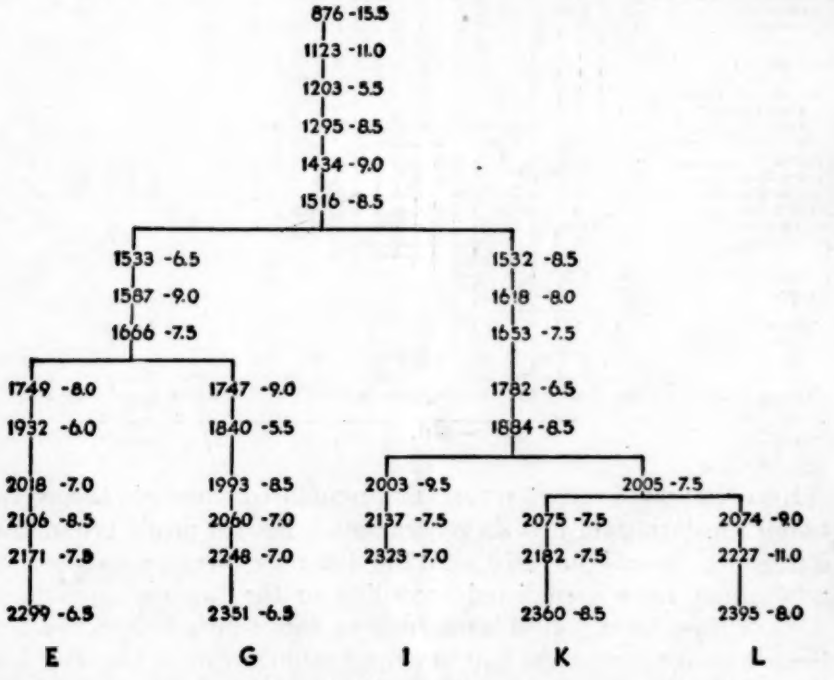
Examination of table 3 reveals no pronounced change in the average tumor age during the first six generations. For the next 5 generations, during which only line 876 and line 492 mice were propagated, the generations have been listed according to the tumors appearing in mice of these lines. It is interesting to note that selection toward a lower average tumor age had but little influence upon line 492 mice, for the average tumor age of 23 mice in the F_8 generation was 13.7 months while in 32 mice of the F_{10} generation it was 13.5 months, and 11 mice of this generation are living without having developed tumor. In view of these results, the mating of line 492 mice was stopped and only mice of line 876 are now being propagated.

As seen in table 3, mice of line 876 have a tendency to develop spontaneous tumors at an early age. Since the mice of this line are included in the figures of the first six generations in the table, it should be recorded that during these generations there were 1, 4, 5, 4, 7, and 5 mice which developed tumors at average ages of 16, 15.2, 12.4, 12.5, 10.6, and 9.8 months, respectively.

The mice of line 876 have undergone 15 generations of inbreeding since January 1, 1933, and all have a common ancestor in mouse 876.

At the present time there are 13 families of line 876 mice propagating, and, as in the past, the procedure will be to select those families which exhibit a tendency toward the development of spontaneous mammary gland tumors early in life. In the accompanying chart the ancestry of five such families is presented in outline form. Just after the number of each mouse is given the age at which it developed a tumor, and below the number of the last mouse in each family is the letter by which that particular family is known.

The ages of the mice in the chart are given in half-month periods for the purpose of comparing them with the average tumor age reported



Ancestry of 5 families of female strain C_3H mice descending from female mouse No. 876, and age at which spontaneous tumor arose in each mouse.

by Strong for his line of C_3H mice. The average tumor age for families E, G, I, K, and L is 8.3, 8.3, 8.6, 8.5, and 8.8 months, respectively. These averages compare favorably with the average tumor age of Strong's (4) line during the last 16 generations, which is 9.6 months.

In addition to the low average tumor age in the families of line 876, it is worthy of note that at least 50 percent of the mice develop multiple spontaneous mammary gland growths before death.

Two other tables are submitted in this report. In one of these, table 4, the ages of death of all mice dying without tumor are tabulated in months.

TABLE 4.—*Summary of ages of all female mice dying without tumor*

Age in months	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Totals
Generation	Number of mice dying without tumor																													
F													1				2		1				1							5
F_1						1				1	2			2			1	1	1		1		2				1		1	14
F_2					1		1	1	1	5	2		1			1		1				1		2		1				18
F_3	1		1			1		1	2			1	3	2	1			3	1	1	5	2	2	1						28
F_4		1		1	1		1		1		1	4							2	2		1			3	2	1			21
F_5		1	1	2			1				1				1							1	1							9
F_6, line 876	1		1																											2
F_6, line 492				3									1				1	2	1	1										9
F_7, line 876		3	1				3		1										1											9
F_7, line 492	2		1			1	1		1			1	1			2	3	1		1						1				16
F_8, line 876	1	2	1	3	4		2	2		2																				17
F_8, line 492		1								1	1						1	1	1											6
Totals of completed generations	5	8	6	9	6	3	9	4	6	8	6	8	7	4	2	3	8	9	8	5	6	5	6	3	4	3	2		1	154
F_9, line 876			1	1	4	2	1	1	1								2			1										11
F_9, line 492					3		2	4	2		3	1			2		2													20
F_{10}, line 876			3	2	1	1			1																					8
F_{10}, line 492			1	1	1	2	2	1	1					1	3															13
F_{11}, line 876			2		2										1															5
F_{11}, line 492					1										1															2
F_{12}, line 876										1																				1
F_{13}, line 876					2	1	1	1																						5
F_{14}, line 876				1	1	1																								3
Totals of incompleted generations			7	5	15	7	6	7	5	1	3	1		1	7		2			1										68
Totals	5	8	13	14	21	10	15	11	11	9	9	9	7	5	9	3	10	9	8	6	6	5	6	3	4	3	2		1	222

From the figures of table 4, it is seen that most of the mice of line 876 died before they were 8 months old.

In table 5 all living mice are tabulated according to their ages in months. Attention is directed to the fact that every mouse 17 months old or older is a mouse of line 492. But few mice of line 876 are living and free from tumor at 12 or more months of age.

TABLE 5.—*Summary of the ages of all female mice living on Feb. 1, 1937*

Age in months	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Totals
Generation	Number of female mice living																					
F_9, line 492																		2		3	2	7
F_{10}, line 876								1	1		1		2									5
F_{10}, line 492																	1	5	3	2		11
F_{11}, line 876								1	1		1		2									5
F_{11}, line 492																1						1
F_{13}, line 876							1		2	1	3		1	1								9
F_{13}, line 876		3					9	1	3	1												17
F_{14}, line 876		7					17	3	1													28
F_{15}, line 876	16	50																				66
Totals	16	60					27	6	8	2	5		5	1		1	1	7	3	5	2	149

SUMMARY

A record of 16 generations of breeding females of strain C_3H is submitted in this report. In these generations there is a total of 1,300 mice which have been or are under observation for the development of spontaneous carcinoma of the mammary gland. It is shown that a high percentage of the mice in every generation have developed tumor, the tumor incidence ranging from 66.1 percent to 88.2 percent in the various generations.

By selecting mice of one particular line, the average age at which tumor appeared has been lowered from 14 to 15 months in the earlier generations to 8 to 10 months in the recent generations.

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DEATHS DURING WEEK ENDED MAY 22, 1937

(From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 22, 1937	Corresponding week, 1936
Data from 86 large cities in the United States:		
Total deaths	8,311	8,387
Average for 3 prior years	8,326	
Total deaths, first 20 weeks of year	194,537	191,041
Deaths under 1 year of age	502	589
Average for 3 prior years	584	
Deaths under 1 year of age, first 20 weeks of year	11,939	11,795
Data from industrial insurance companies:		
Policies in force	69,731,099	68,290,456
Number of death claims	13,016	13,588
Death claims per 1,000 policies in force, annual rate	9.7	10.4
Death claims per 1,000 policies, first 20 weeks of year, annual rate	11.2	10.9

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 29, 1937, and May 30, 1936

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936
New England States:								
Maine	---	2	2	2	10	315	1	1
New Hampshire	---	---	---	---	3	8	0	1
Vermont	1	---	---	---	7	183	0	0
Massachusetts	7	5	---	---	697	1,125	5	7
Rhode Island	---	3	---	---	59	40	0	2
Connecticut	2	2	---	1	181	203	0	0
Middle Atlantic States:								
New York	28	45	[1] 7	[1] 12	1,565	2,430	5	6
New Jersey	7	9	1	4	1,291	376	3	3
Pennsylvania	24	30	---	---	1,969	1,560	8	12
East North Central States:								
Ohio [2]	31	27	27	22	1,839	608	9	6
Indiana	5	7	15	14	556	15	3	3
Illinois	36	33	69	27	417	21	4	5
Michigan	23	4	---	2	192	75	2	4
Wisconsin	4	1	19	24	58	209	0	2
West North Central States:								
Minnesota	1	7	---	---	10	419	0	1
Iowa	4	2	1	---	6	5	0	0
Missouri	7	5	25	36	30	14	0	2
North Dakota [3]	1	---	---	5	---	1	1	1
South Dakota	1	3	---	---	4	---	0	0
Nebraska	1	2	---	5	17	64	0	0
Kansas	12	4	---	---	43	5	3	0
South Atlantic States:								
Delaware	---	---	---	---	19	17	0	0
Maryland [3] [4]	7	6	2	4	351	366	4	4
District of Columbia	5	9	---	---	146	148	0	0
Virginia [3]	9	10	---	50	465	72	11	10
West Virginia	4	5	23	35	35	48	7	8
North Carolina [3]	6	11	3	3	298	41	8	4
South Carolina	4	2	101	73	68	65	0	1
Georgia [3]	4	3	---	---	---	---	0	4
Florida	8	---	---	4	---	18	2	6

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 29, 1937, and May 30, 1936—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936
East South Central States:								
Kentucky	5	3	----	2	293	23	6	32
Tennessee	6	8	16	32	131	35	2	5
Alabama [3]	12	12	10	43	31	3	18	3
Mississippi	2	6	----	----	----	----	0	0
West South Central States:								
Arkansas	3	2	26	54	16	4	0	0
Louisiana	13	3	13	6	10	32	2	1
Oklahoma	10	8	4	33	60	8	1	0
Texas [3]	27	30	137	100	498	280	4	8
Mountain States:								
Montana [3]	2	----	1	----	1	8	0	1
Idaho [3]	2	----	12	----	14	16	0	1
Wyoming [3] [5]	----	----	----	----	5	1	0	0
Colorado	6	5	----	----	21	44	2	0
New Mexico [3]	3	2	2	6	75	68	0	0
Arizona	----	----	31	37	41	111	0	1
Utah [4]	----	----	----	----	50	19	0	0
Pacific States:								
Washington	3	----	----	9	62	339	1	0
Oregon [3]	1	1	9	11	6	102	0	1
California [3]	33	36	52	82	310	1,567	8	2
Total	370	353	608	738	11,960	11,111	120	148
First 21 weeks of year	9,998	10,992	270,457	134,704	176,891	215,048	3,333	4,890

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936
New England States:								
Maine	0	0	18	10	0	0	2	1
New Hampshire	0	0	7	2	0	0	1	0
Vermont	0	0	22	6	0	0	0	0
Massachusetts	0	8	204	179	0	0	0	5
Rhode Island	0	0	51	23	0	0	0	0
Connecticut	0	0	133	17	0	0	0	2
Middle Atlantic States:								
New York	0	1	758	610	0	0	5	2
New Jersey	0	0	181	226	0	0	2	1
Pennsylvania	1	1	922	342	0	0	7	6
East North Central States:								
Ohio [3]	1	0	390	210	1	0	13	5
Indiana	0	0	90	88	9	0	1	1
Illinois	1	0	607	412	16	20	8	4
Michigan	1	0	773	287	0	0	2	2
Wisconsin	1	0	289	310	3	1	3	0
West North Central States:								
Minnesota	0	0	130	249	23	3	0	0
Iowa	0	1	138	154	43	42	1	0
Missouri	0	0	120	91	40	7	1	1
North Dakota [3]	0	0	32	16	29	11	2	2
South Dakota	0	0	27	26	1	20	0	0
Nebraska	0	0	47	72	2	14	0	0
Kansas	0	0	101	154	18	9	0	0
South Atlantic States:								
Delaware	0	0	3	1	0	0	2	0
Maryland [3] [4]	0	0	38	38	0	0	6	0
District of Columbia	0	0	12	20	0	0	0	0
Virginia [3]	0	0	4	45	0	0	5	15
West Virginia	0	1	55	40	0	0	0	5
North Carolina [3]	2	2	30	18	0	1	7	7
South Carolina	0	0	4	4	0	0	2	2
Georgia [3]	0	0	7	10	1	0	1	7
Florida	1	0	7	4	0	0	6	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 29, 1937, and May 30, 1936—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936	Week ended May 29, 1937	Week ended May 30, 1936
East South Central States:								
Kentucky	0	0	37	17	0	0	5	6
Tennessee	1	1	9	10	0	3	5	3
Alabama [3]	1	0	4	2	1	0	4	4
Mississippi	5	0	5	9	0	0	10	2
West South Central States:								
Arkansas	0	0	13	4	11	0	2	3
Louisiana	0	0	10	6	0	0	15	10
Oklahoma	0	0	22	26	1	4	4	6
Texas [3]	1	0	120	50	5	13	16	7
Mountain States:								
Montana [3]	0	0	21	54	20	7	0	1
Idaho [3]	0	0	----	12	6	3	1	0
Wyoming [3] [5]	0	0	13	23	3	33	0	0
Colorado	0	0	42	51	5	2	0	1
New Mexico [3]	0	1	15	35	2	0	1	1
Arizona	0	0	3	20	0	0	1	2
Utah [4]	0	0	11	39	0	2	0	1
Pacific States:								
Washington	0	0	38	32	4	3	0	1
Oregon [3]	0	0	34	25	10	0	3	2
California [3]	5	5	194	300	15	0	5	9
Total	21	21	5,791	4,379	269	198	149	127
First 21 weeks of year	454	356	140,683	154,175	6,508	4,692	2,414	2,395

[1] New York City only.
[2] Typhus fever, week ended May 29, 1937, 31 cases, as follows: Ohio, 1; Maryland, 1; North Carolina, 1; Georgia, 9; Alabama, 8; Texas, 10; California, 1.
[3] Rocky Mountain spotted fever, week ended May 29, 1937, 26 cases, as follows: North Dakota, 1; Virginia, 1; Montana, 3; Idaho, 10; Wyoming, 9; New Mexico, 1; Oregon, 1.
[4] Week ended earlier than Saturday.
[5] Colorado tick fever, week ended May 29, 1937, Wyoming, 2 cases.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
February 1937										
Florida	15	36	118	7	18	----	3	29	0	5
March 1937										
Florida	37	27	124	20	23	1	6	35	0	12
Puerto Rico	2	46	414	527	270	----	1	----	0	114
April 1937										
Arizona	5	4	196	6	1,061	4	3	78	0	2
Florida	12	25	59	11	41	----	1	95	0	2
Hawaii Territory	1	19	21	----	2,662	----	0	2	0	5
Iowa	1	21	59	----	42	----	1	1,123	220	7
Louisiana	8	52	163	53	24	15	1	60	1	35
Montana	4	7	106	----	67	----	0	132	122	5
North Dakota	2	4	57	----	3	----	0	98	66	1
Oregon	4	2	130	1	28	----	3	150	71	3
Texas	24	173	3,277	2,016	----	140	12	579	----	51
Vermont	----	5	----	----	3	----	0	23	1	0
Virginia	43	40	1,031	9	1,823	2	2	60	2	16

Summary of monthly reports from States—Continued

February 1937	Cases
Florida:	
Chicken pox	93
Dysentery (amoebic)	2
Hookworm disease	34
Mumps	47
Tetanus	2
Typhus fever	6
Whooping cough	20
March 1937	
Florida:	
Chicken pox	91
Dengue	1
Dysentery (amoebic)	8
Hookworm disease	942
Mumps	83
Tetanus	3
Typhus fever	6
Whooping cough	42
Puerto Rico:	
Chicken pox	97
Dysentery	19
Leprosy	2
Puerperal septicemia	3
Tetanus	18
Whooping cough	35
April 1937	
Chicken pox:	
Arizona	127
Florida	378
Hawaii Territory	130
Iowa	154
Louisiana	29
Montana	112
North Dakota	41
Oregon	136
Vermont	77
Virginia	375
Dysentery:	
Arizona	68
Hawaii Territory (bacillary)	3
Louisiana (amoebic)	3
Oregon (amoebic)	1
Virginia (diarrhea included)	47

April 1937—Continued	Cases
Encephalitis:	
Florida	6
Oregon	1
Texas	6
Virginia	1
German measles:	
Arizona	13
Iowa	33
Montana	7
Vermont	10
Hookworm disease:	
Florida	681
Hawaii Territory	6
Louisiana	32
Impetigo contagiosa:	
Hawaii Territory	19
Oregon	40
Jaundice, infectious:	
Oregon	1
Leprosy:	
Hawaii Territory	3
Louisiana	1
Mumps:	
Arizona	104
Florida	172
Hawaii Territory	86
Iowa	114
Louisiana	13
Montana	512
North Dakota	56
Oregon	72
Vermont	214
Virginia	429
Ophthalmia neonatorum:	
Hawaii Territory	1
Louisiana	1
Virginia	2
Paratyphoid fever:	
Louisiana	1
Texas	1
Virginia	2
Rabies in animals:	
Louisiana	25
Oregon	3

April 1937—Continued	Cases
Rocky Mountain spotted fever:	
Montana	3
Oregon	9
Septic sore throat:	
Iowa	6
Louisiana	1
Montana	14
Oregon	6
Virginia	6
Scabies:	
Oregon	40
Vermont	2
Tetanus:	
Hawaii Territory	3
Louisiana	3
Tick paralysis:	
Montana	1
Trachoma:	
Arizona	22
Hawaii Territory	18
Oregon	7
Tularaemia:	
Louisiana	4
Montana	1
Virginia	1
Undulant fever:	
Arizona	2
Florida	3
Iowa	13
Louisiana	4
Montana	2
Vermont	2
Virginia	4
Vincent's infection:	
North Dakota	4
Oregon	13
Whooping cough:	
Arizona	70
Florida	109
Hawaii Territory	2
Iowa	128
Louisiana	83
Montana	65
North Dakota	2
Oregon	117
Vermont	170
Virginia	429

RODENT PLAGUE IN WALLOWA COUNTY, OREG.

Under date of May 27, 1937, plague infection was reported found in tissue taken from a ground squirrel, *Citellus oregonus*, which was found dead on a ranch 5 miles northeast of Enterprise, Wallowa County, Oreg.

WEEKLY REPORTS FROM CITIES

City reports for week ended May 22, 1937

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	196	127	43	6,829	626	2,206	19	424	32	1,414	------
Current week	136	47	24	4,513	549	2,443	19	419	28	1,396	------
Maine:											
Portland	0	------	0	3	3	2	0	1	0	5	41
New Hampshire:											
Concord	0	------	0	1	3	0	0	0	0	0	11
Nashua	0	------	1	2	0	1	0	1	0	0	7
Vermont:											
Barre	1	------	0	0	0	1	0	0	0	0	4
Burlington	0	------	0	0	0	1	0	0	0	0	11
Rutland	0	------	0	0	2	1	0	0	0	2	4
Massachusetts:											
Boston	4	------	1	58	13	70	0	10	0	50	202
Fall River	0	------	0	29	1	0	0	5	0	5	33
Springfield	0	------	0	3	1	6	0	1	0	4	33
Worcester	0	------	0	20	4	8	0	4	0	12	46
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	22
Providence	0	------	0	133	5	48	0	3	2	23	88
Connecticut:											
Bridgeport	0	------	0	3	1	65	0	2	0	0	34
Hartford	0	------	0	18	3	6	0	1	0	4	49
New Haven	0	------	0	1	0	3	0	0	0	0	48
New York:											
Buffalo	0	------	1	92	4	19	0	4	0	22	117
New York	25	7	1	934	125	324	0	105	7	67	1,542
Rochester	0	1	0	3	5	8	0	5	0	13	70
Syracuse	1	------	0	37	3	31	0	0	0	29	45
New Jersey:											
Camden	1	1	1	35	2	2	0	1	0	1	34
Newark	0	------	2	162	5	15	0	3	0	13	90
Trenton	0	------	1	6	2	11	0	4	0	2	34
Pennsylvania:											
Philadelphia	5	3	2	60	22	233	0	17	1	36	443
Pittsburgh	3	1	0	222	27	49	0	9	1	30	167
Reading	1	------	0	330	0	11	0	1	0	1	25
Scranton	0	------	------	0	------	12	0	------	0	0	------
Ohio:											
Cincinnati	4	------	1	126	8	28	0	7	0	8	131
Cleveland	1	4	1	470	22	124	0	8	1	54	198
Columbus	0	------	0	13	9	8	0	5	0	21	106
Toledo	1	------	0	329	4	6	0	4	0	29	55
Indiana:											
Anderson	0	------	0	5	2	2	0	0	0	2	10
Fort Wayne	0	------	0	0	4	2	0	0	0	0	24
Indianapolis	2	------	1	354	9	27	0	1	0	37	106
Muncie	0	------	0	0	2	0	0	0	0	4	15
South Bend	1	------	0	0	1	3	0	1	0	2	17
Terre Haute	1	------	0	1	0	1	0	0	0	0	18
Illinois:											
Alton	1	------	0	0	0	3	0	0	0	0	9
Chicago	21	8	2	221	42	310	0	38	2	78	672
Elgin	1	------	0	0	5	0	0	0	0	1	15
Moline	0	------	0	0	0	8	0	0	0	7	7
Springfield	1	------	0	4	3	4	0	0	0	2	24
Michigan:											
Detroit	14	------	0	46	21	406	1	23	1	89	301
Flint	2	------	0	57	4	14	0	1	0	0	24
Grand Rapids	0	------	1	65	0	13	0	1	1	23	35
Wisconsin:											
Kenosha	0	------	0	2	0	5	0	0	0	0	8
Madison	0	------	0	1	0	9	0	0	0	1	23
Milwaukee	0	1	1	17	6	63	0	4	0	18	120
Racine	0	------	0	2	0	11	0	1	0	1	11
Superior	0	------	0	0	2	7	0	0	0	5	8

City reports for week ended May 22, 1937—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Minnesota:											
Duluth	0	------	0	0	2	19	0	2	0	2	21
Minneapolis	1	------	0	4	4	35	0	2	0	45	99
St. Paul	0	------	0	1	5	4	0	0	0	84	54
Iowa:											
Cedar Rapids	0	------	--------	0	-------	4	0	-------	0	2	--------
Davenport	0	------	--------	0	-------	7	1	-------	0	0	--------
Des Moines	0	------	--------	0	-------	35	1	-------	0	1	34
Sioux City	1	------	--------	0	-------	11	0	-------	0	0	--------
Waterloo	2	------	--------	0	-------	8	0	-------	0	4	--------
Missouri:											
Kansas City	2	------	0	2	5	54	0	3	0	28	99
St. Joseph	0	------	0	0	2	14	6	1	1	0	21
St. Louis	9	------	0	15	5	170	0	7	2	52	199
North Dakota:											
Fargo	0	------	0	1	0	2	1	0	0	6	8
Grand Forks	0	------	--------	0	-------	0	1	-------	0	2	--------
Minot	0	------	0	0	0	0	1	0	0	0	10
South Dakota:											
Aberdeen	0	------	--------	1	-------	2	0	-------	0	0	--------
Nebraska:											
Omaha	0	------	0	0	1	6	0	1	0	13	54
Kansas:											
Lawrence	0	------	0	0	0	1	0	0	0	0	5
Topeka	0	------	0	0	1	5	0	0	0	4	15
Wichita	0	------	0	8	4	2	0	0	0	17	26
Delaware:											
Wilmington	0	------	0	1	3	1	0	1	0	0	38
Maryland:											
Baltimore	0	2	1	263	17	22	0	17	2	58	226
Cumberland	0	------	0	0	1	0	0	0	0	0	15
Frederick	0	------	0	1	0	0	0	0	0	0	5
District of Columbia:											
Washington	2	------	0	107	14	14	0	15	2	10	170
Virginia:											
Lynchburg	1	------	0	6	3	0	0	1	0	3	14
Norfolk	0	3	0	12	2	2	0	1	0	29	29
Richmond	0	------	0	1	5	0	0	2	0	4	47
Roanoke	0	------	0	138	2	0	0	0	1	7	10
West Virginia:											
Charleston	0	------	0	0	1	2	0	2	0	0	20
Huntington	0	------	--------	1	-------	4	0	-------	0	0	--------
Wheeling	0	------	0	1	1	2	0	0	0	4	11
North Carolina:											
Gastonia	1	------	--------	0	-------	0	0	-------	0	2	--------
Raleigh	0	------	0	5	1	0	0	2	0	1	14
Wilmington	0	------	1	0	0	0	0	0	0	2	9
Winston-Salem	0	------	0	0	2	7	0	1	0	2	17
South Carolina:											
Charleston	0	1	0	0	3	0	0	1	1	0	19
Florence	0	------	0	0	1	0	0	0	0	0	12
Greenville	1	------	0	0	3	0	0	0	0	0	7
Georgia:											
Atlanta	0	------	0	0	11	8	0	5	0	9	83
Brunswick	0	------	0	0	0	0	0	0	0	0	7
Savannah	0	4	0	0	0	0	0	6	0	0	30
Florida:											
Miami	1	1	1	1	0	2	0	0	2	0	22
Tampa	0	------	0	25	0	0	0	0	2	3	24
Kentucky:											
Covington	0	------	1	19	0	0	0	3	0	1	22
Lexington	1	------	0	10	2	5	0	2	0	20	24
Louisville	2	1	1	40	11	16	0	6	0	50	70
Tennessee:											
Knoxville	0	------	2	0	3	0	0	0	0	0	23
Memphis	1	------	0	78	6	1	0	5	0	64	78
Nashville	0	------	0	13	2	1	0	3	0	0	40
Alabama											
Birmingham	0	1	0	22	9	1	0	6	1	10	73
Mobile	0	------	1	0	2	2	0	0	0	6	16
Montgomery	0	------	--------	0	-------	0	0	-------	0	1	--------
Arkansas:											
Fort Smith	0	------	--------	1	-------	1	0	-------	0	0	--------
Little Rock	0	------	0	3	1	4	0	3	0	0	4

City reports for week ended May 22, 1937—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths all causes
		Cases	Deaths								
Louisiana:											
Lake Charles	0	------	0	0	1	0	0	0	0	1	8
New Orleans	7	3	3	6	12	9	0	11	0	1	141
Shreveport	0	------	0	0	4	0	0	5	0	2	37
Oklahoma:											
Muskogee	0	------	--------	0	-------	2	0	--------	0	1	--------
Oklahoma City	0	2	0	6	3	4	0	0	1	0	47
Texas:											
Dallas	2	------	0	116	3	12	0	2	0	24	63
Fort Worth	1	------	2	4	0	10	0	3	0	43	30
Galveston	0	------	0	0	0	1	0	1	0	0	14
Houston	5	2	0	1	5	1	0	2	0	11	74
San Antonio	1	------	1	1	3	1	0	9	0	1	69
Montana:											
Billings	0	------	0	0	1	0	0	0	0	0	13
Great Falls	0	------	0	0	1	0	0	0	0	3	8
Helena	0	------	0	0	0	4	0	0	0	0	1
Missoula	0	------	0	0	1	0	7	0	0	0	4
Idaho:											
Boise	0	------	0	0	1	0	0	0	0	0	5
Colorado:											
Colorado Springs	0	------	0	0	0	2	0	4	0	0	9
Denver	1	------	0	20	4	17	0	5	0	38	80
Pueblo	1	------	0	0	2	0	0	0	0	1	7
New Mexico:											
Albuquerque	0	------	0	24	3	6	0	4	0	12	18
Utah:											
Salt Lake City	0	------	1	41	2	3	0	0	0	15	37
Washington:											
Seattle	0	------	0	1	1	9	1	3	0	45	65
Spokane	0	------	0	12	5	1	2	0	0	6	35
Tacoma	0	------	0	0	1	4	0	0	0	2	31
Oregon:											
Portland	1	2	0	0	5	21	0	5	0	6	84
Salem	0	------	--------	0	-------	1	0	--------	0	3	--------
California:											
Los Angeles	11	8	0	18	19	43	1	20	0	132	307
Sacramento	4	------	0	55	2	4	0	3	0	9	30
San Francisco	0	------	0	10	9	20	0	6	0	41	170

State and city	Meningococcus meningitis		Poliomyelitis cases	State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				Maryland:			
Boston	6	1	0	Baltimore	1	0	0
New York:				District of Columbia:			
Buffalo	1	0	0	Washington	2	2	0
New York	5	0	0	Virginia:			
Pennsylvania:				Norfolk	1	0	0
Philadelphia	2	1	0	West Virginia:			
Pittsburgh	2	0	0	Wheeling	1	0	0
Ohio:				Kentucky:			
Cincinnati	2	0	0	Louisville	2	1	0
Indiana:				Alabama:			
Indianapolis	1	0	0	Birmingham	2	2	0
Illinois:				Texas:			
Chicago	2	2	0	Fort Worth	0	0	1
Michigan:				San Antonio	0	0	1
Detroit	1	0	1	Colorado:			
Minnesota:				Denver	0	1	0
Minneapolis	1	0	0	Washington:			
Missouri:				Spokane	1	1	0
Kansas City	0	1	0	California:			
				Los Angeles	1	0	1

Encephalitis, epidemic or lethargic.—Cases: Hartford, 1; New York, 2; Cleveland, 1; Toledo, 1; St. Paul, 1; Lawrence, Kans., 2; Wichita, 1.

Pellagra.—Cases: Wichita, 1; San Francisco, 1.

Typhus fever.—Cases: Atlanta, 1; Savannah, 1. Deaths: New York, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended May 8, 1937.—During the 2 weeks ended May 8, 1937, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick [1]	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				2						2
Chicken pox			14	209	620	37	66	10	81	1,037
Diphtheria	2	7	3	56	11	3		1	1	84
Dysentery					1					1
Erysipelas				18	7	4	4	7	6	46
Influenza	10	12		7	2	1	1		18	51
Leprosy			1							1
Measles	25	110	44	731	1,204	333	263	180	591	3,481
Mumps		11	12		495	21	7	31	35	612
Pneumonia	9	2			47		6		22	86
Poliomyelitis						1				1
Scarlet fever		16	3	182	315	36	87	124	38	801
Trachoma					1		3			4
Tuberculosis	1	18	27	106	95	29	13	7	34	330
Typhoid fever			5	45	1	2	5	1		59
Undulant fever			1	2	5	2				10
Whooping cough		9		350	226	66	85	1	14	751

[1] In the table on page 691 of the PUBLIC HEALTH REPORTS for May 21, 1937, 39 cases of diphtheria were reported in New Brunswick. This was an error. It should have read 39 cases of chicken pox. The total for chicken pox should have been 1,132 and that for diphtheria 62 cases.

FINLAND

Communicable diseases—April 1937.—During the month of April 1937, cases of certain communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria	268	Poliomyelitis	5
Influenza	4,637	Scarlet fever	1,415
Paratyphoid fever	31	Typhoid fever	25

ITALY

Communicable diseases—4 weeks ended March 28, 1937.—During the 4 weeks ended March 28, 1937, cases of certain communicable diseases were reported in Italy as follows:

Disease	Mar. 1-7		Mar. 8-14		Mar. 15-21		Mar. 22-28	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	14	12	9	8	7	7	9	8
Cerebrospinal meningitis	25	23	34	29	38	35	27	23
Chicken pox	479	151	557	169	497	162	478	170
Diphtheria	507	298	502	260	403	215	479	250
Dysentery	5	5	6	6	13	9	2	2
Hookworm disease	7	3	4	4	4	4	10	5
Lethargic encephalitis	6	6	1	1			2	2
Measles	2,270	312	2,238	300	2,064	301	1,708	283
Mumps	603	132	698	145	595	129	459	122
Paratyphoid fever	21	19	25	19	29	25	22	20
Poliomyelitis	10	10	9	9	12	10	17	16
Puerperal fever	61	50	29	28	33	28	33	32
Scarlet fever	391	147	373	126	355	132	379	119
Typhoid fever	176	124	223	124	171	112	229	130
Undulant fever	81	55	84	62	92	60	113	71
Whooping cough	566	178	644	185	502	158	494	152

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for May 28, 1937, pp. 709-722. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued June 25, 1937, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Plague

Senegal—Thies Subdivision.—On May 10, 1937, 2 fatal cases of plague were reported in Thies Subdivision, Senegal.

United States—Oregon.—A report of rodent plague in Wallowa County, Oreg., appears on page 784 of this issue of the PUBLIC HEALTH REPORTS.

Smallpox

Egypt—Port Said.—During the week ended April 25, 1937, 4 cases of smallpox were reported in Port Said, Egypt.

Yellow fever

Senegal—Malem Hodar.—On May 23, 1937, 1 fatal case of yellow fever was reported in Malem Hodar, Senegal.

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